Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): Fission reactor for a Claus plant, comprising a boiler (9) lined with refractory material, which comprises a combustion chamber (2) having an inflow opening (12) for a mixture of heating gas, air and acid gas containing H_2S, a catalyst chamber (10) having a catalyst bed (3), and ~~a~~ an outflow-side chamber (11) ~~on the outflow side,~~ having a gas outlet (13) for hot process gas containing elemental sulfur, wherein the boiler (9) is configured as a horizontal cylindrical boiler, in which the combustion chamber (2), the catalyst chamber (10), and the outflow-side chamber (11) ~~on the outflow side~~ are disposed next to one another, and ~~that~~ wherein the catalyst chamber (10) is delimited, on both sides, in the flow direction, by gas-permeable checker bricks (14) containing elongated holes, and has a mantle-side fill opening (15) for introducing the catalyst bed (3)~~, on the mantle side~~.

Claim 2 (Currently Amended): Fission reactor as claimed in claim 1, wherein the ~~flow~~ inflow opening (12) and the gas outlet (13) are disposed on opposite faces of the boiler (9).

Claim 3 (Canceled).

Claim 4 (Currently Amended): Fission reactor as claimed in claim 1, wherein on the circumference of the outflow-side chamber (11) ~~on the outflow side~~, a branch line (16) lined with refractory material is connected, which opens into a process gas line (17) adjacent to the boiler (9), in the opening region of the branch line (16), a valve body (18) is disposed in adjustable manner, with which the amount flow of a hot gas stream that exits from the branch line (16) can be regulated, and a cooler process gas passes through the process gas line (17), which cools the valve body (18) and a setting device (19) assigned to the valve body.

Claim 5 (Previously Presented): Fission reactor as claimed in claim 4, wherein a waste heat boiler (4) is connected with the gas outlet (13), in which the hot process gas that exits from the

boiler (9) is cooled for the condensation of elemental sulfur, and steam is generated, and wherein the branch line (16) opens into a process gas line (17) that is connected with the waste heat boiler (4) and passes the cooled process gas to a catalyst stage (5) of the Claus plant.